

REMARKS

Claims 1-26, 61-63, and 69-71 are pending in the application. All claims stand rejected. The Examiner's objections and rejections in the final office action are addressed below in substantially the same order as in the office action. Additionally, concurrently filed herewith is a supplemental IDS.

Tanenhaus

In the previous response, Applicant argued that Tanenhaus does not teach or suggest the inventions claimed because Tanenhaus is not used for seismic surveying operations or to record seismic data suitable for characterizing subsurface formations. The Examiner contends that the claims as then presented did not recite structural limitations consistent with the Applicant's arguments. Applicant submits that the claims as then presented, when read in light of the specification, were structurally distinct from Tanenhaus. Nevertheless, to expedite prosecution, Applicant has clarified the independent claims vis-à-vis Tanenhaus.

With respect to claim 1, Tanenhaus does not teach or suggest an apparatus for acquiring seismic data used to characterize a subsurface formation. Moreover, Tanenhaus does not teach or suggest a sensor unit coupled to an earth's surface for sensing seismic energy imparted into the subsurface formation and providing a signal indicative of seismic energy reflected from the subsurface formation and suitable for imaging the subsurface formation. Tanenhaus also does not teach or suggest a location sensor providing a location parameter to only the acquisition device, the location parameter being processed with the acquired seismic data. Thus, claim 1 and all claims depending therefrom are allowable over Tanenhaus and in condition for allowance.

With respect to claim 61, Tanenhaus does not teach or suggest an apparatus for acquiring seismic data used to characterize a subsurface formation. Moreover,

Tanenhaus does not teach or suggest a sensor unit providing a signal indicative of seismic energy reflected from the subsurface. Tanenhaus also does not teach or suggest a location sensor providing a location parameter to only the acquisition device, the location parameter being correlated to generate an image of the subsurface. Thus, claim 61 and all claims depending therefrom are allowable over Tanenhaus and in condition for allowance.

Wood

With respect to claims 69 and 70, Wood does not teach or suggest an apparatus for acquiring seismic data that uses a separate recorder co-located with each sensor. Rather, Wood teaches a recorder that receives information from a plurality of sensors. As described in col. 6, lines 30-35, the sensors can be separated from the receiver by lead-ins that are 50 meters in length. Thus, the device of Wood is neither has a sensor co-located with a recorder or a separate recorder for each sensor. Thus, claims 69 and 70 are allowable over Wood and in condition for allowance.

With respect to claim 71, Wood does not teach or suggest a sensor unit generating signals indicative of the seismic energy sensed from one selected location. Rather, Wood teaches a recorder that receives information from a plurality of sensor locations. Thus, claim 71 is allowable over Wood and in condition for allowance.

Rialan & Longaker

The Examiner rejected claims 1, 3,8-9, 13-19, 26, 61-63 and 69-71 as obvious over Rialan in view of Longaker. To Applicant's reading, the Examiner agrees that Rialan does not disclose a location sensor that provides data to only an associated receiver and that Rialan also does not teach a location sensor co-located with each receiver. Examiner contends that Longaker (5,978,313) teaches using a GPS as a location sensor associated with the acquisition devices to provide location information and it would have been obvious to modify Rialan to use GPS sensors.

Applicant submits that it is improper to combine Rialan with Longaker for at least two reasons. First, Rialan teaches away from using a GPS sensor for each acquisition unit. Rialan states that the advantage to the disclosed system is a reduction in complexity of in-field equipment:

The method according to the invention, such as defined above, affords many advantages mainly due to the mode of collection and of allocation of the position data. An operator moves around in the field and positions in the vicinity of each geophone or group of geophones constituting a trace a positioning set adapted for calculating the position data from position signals provided by a hertzian-signal locating system... With a possibly single and therefore less costly positioning set, location labels can be successively associated with all the seismic data transmitted from the various acquisition devices, whatever the number thereof. The system according to the invention may be used with existing acquisition devices without modifying the latter. Col. 3, lines 1-29. (emphasis added)

The Examiner's suggested modification of installing a GPS device would effectively negate the "mode of collection and allocation of the position data" taught by Rialan and thereby negate the stated advantages of the disclosed system over the prior art. Indeed, a prior art satellite location system is specifically described in the Background of the Invention at column 1, lines 49-54. Furthermore, Rialan expressly emphasizes the advantage of a "possibly single...less costly positioning set," which also would be negated by the plurality of positioning sets that would be required by the suggested combination. Thus, Rialan expressly teaches against the combination asserted by the Examiner. The

second reason the combination is improper is that Longaker is expressly directed to solving a different problem than Rialan. Longaker teaches using a positioning system to acquire a highly accurate time value and then initiate data collection at a prespecified time using the time determined from the positioning signal (Abstract). Longaker is directed to only time synchronization, not to devices for ascertaining location parameters. Thus, Longaker itself has no teachings that would suggest the modification suggested by the Examiner.

Because Rialan cannot be combined in a manner suggested by Longaker, Applicant respectfully submits that the obviousness rejections of claims 1, 61 and 69-71 are improper and that claims 1, 61 and 69-71 are in condition for allowance. Claims 3,8-9, 13-19, 26, depend from independent claim 1 and claims 62-63 depend from independent claim 61. Both of the independent claims are believed to be in condition for allowance and, therefore, the dependent claims are believed to be allowable on at least those grounds.

Tanenhaus and Rialan

Claims 14 and 62 stand rejected as obvious over Tanenhaus and in view of Rialan. For the reasons discussed above, claim 1, from which claim 14 depends, and claim 62, from which claim 62 depends, are both allowable over Tanenhaus and Rialan. Thus, claims 14 and 62 are allowable on at least such grounds.

Rialan and Longaker

Claims 4-7 stand rejected as obvious over Rialan in view of Longaker and further in view of Siems. For the reasons discussed above, claim 1, from which claims 4-7 depend, is allowable over Rialan and Longaker. To Applicant's reading, Siems does not supply any teaching missing from Rialan and Longaker that would affect the allowability of claim 1. Thus, claims 4-7 are allowable on at least the grounds.

Rialan and Longaker and Tanenhaus

Claims 10-12 stand rejected as obvious over Rialan in view of Longaker and further in view of Tanenhaus. For the reasons discussed above, claim 1, from which claims 4-7 depend, is allowable over Rialan, Tanenhaus and Longaker. Thus, claims 10-12 are allowable on at least the grounds that the base claim, claim 1, is allowable.

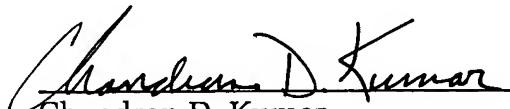


CONCLUSION

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance. Applicant encloses a check in the amount of \$790.00 to cover the Request for Continued Examination fee required under 37 C.F.R. 1.114. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. **13-0010 (IO-1096US)**.

Respectfully submitted,

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